NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
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KENNEDY SPACE CENTER, FLORIDA 32899

JAN 5 1972

REPLY TO
ATTN OF: AA-RQA

MEMORANDUM

TO: Distribution

FROM: AA/Manager, Apollo-Skylab Programs

SUBJECT: OMSF Skylab Program Directive #56 dated December 6, 1971, Subject: Technical Support for Resolving Significant Technical Problems from Initiation of Integrated System Test Through Mission Completion

OMSF Skylab Program Directive #56 has been received by this office. As noted in the attached briefing note, this directive is almost identical to its Apollo counterpart, APD #56, and differs principally in describing the hardware unique to the Skylab Program. KSC implementation of this new directive will be via KPD 8610.2/AA, "Technical Support for Resolving Significant Technical Problems," which was originally developed in response to APD #56.

for William H. Rock
Robert C. Hock

2 Enclosures
SPD #56
Briefing note to Dr. Debus

Distribution:
STDL-B

TS20117-5

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Dr. Debus

SUBJECT: Skylab Program Directive #56

The directive, entitled "Technical Support for Resolving Significant Technical Problems from Initiation of Integrated System Test Through Mission Completion," dated December 6, 1971, was developed by the Skylab Program Director to respond to the Apollo 13 Review Board Recommendation #6. This directive is the Skylab counterpart to Apollo Program Directive #56, "Technical Support for Resolving Significant Problems from Space Vehicle Rollout through Mission Completion." For the most part, the Skylab and Apollo directives are identical and differ only in describing that hardware unique to the respective programs.

The intent of both these directives is to ensure that critical decisions involved in the identification and resolution of significant technical problems are completely documented and include participation of the individuals most familiar with the system involved.

Implementation of Skylab Program Directive #56 will be via Kennedy Program Directive 8610.2/AA, "Technical Support for Resolving Significant Technical Problems," dated January 11, 1971, which was originally developed to respond to APD #56. Only a minor revision to KPD 8610.2 is required to refer to the new directive.

The new directive will be given the usual distribution to the first and second level directorates.

for William H. Rock
Robert C. Hock

OFFICE OF MANNED SPACE FLIGHT PROGRAM DIRECTIVE	M-D ML 3200.142 (Project)	DATE DEC 6 1971

SKYLAB

PROGRAM DIRECTIVE NO. 56

TO: DISTRIBUTION

FROM: William C. Schneider
Director, Skylab Program

SUBJECT: TECHNICAL SUPPORT FOR RESOLVING SIGNIFICANT TECHNICAL PROBLEMS FROM INITIATION OF INTEGRATED SYSTEM TEST THROUGH MISSION COMPLETION

REFS :
(a) Skylab Program Directive #10A, "Skylab Nonconformance and Corrective Action"
(b) Skylab Program Directive #11A, "Sequence and Flow of Hardware Development and Key Inspection, Review and Certification Checkpoints"
(c) Skylab Program Directive #12, "Prelaunch Checkout and Launch of Center Developed (In-House) Flight Hardware for AAP"
(d) Skylab Program Directive #26, "Intercenter Responsibilities for Support and Preparation of KSC Test and Checkout Plans and Procedures"
(e) NASA Administrator letter of September 10, 1968, Subject: AAP Management
(f) Skylab Program Directive #35, "Skylab Mission Evaluation Requirements"

I. PURPOSE

This directive establishes the procedures for documenting the existence of significant technical problems in flight hardware and associated GSE and for providing technical support for their resolution for each Skylab mission from initiation of integrated systems tests through mission completion. This directive supplements the requirements of references a, b, c, d, e, and f.

II. ACTION REQUIRED

Each Manned Space Flight Center will maintain a team of technical personnel, on station or on call depending on the level of activity being supported, with a central

point of contact to resolve technical problems when they occur, from initiation of integrated systems tests through mission completion. Scope of the support during this period should be tailored to the level of activity being supported.

a. Each Center will ensure that necessary decision making engineering support is made available to the technical support team leader both from Center and/or contractor personnel during their periods of responsibility. This should include participation of individuals thoroughly familiar with the details of the hardware and its prior history.

b. Each Center, as applicable, will determine the level and location of drawings for the spacecraft, launch vehicle, Saturn workshop systems modules, GSE and experiment hardware, both component and subsystem, to be available for identification and resolution of significant technical problems.

c. Communications, as necessary, between Centers and contractors will be made available at the central point of contact, such as voice circuits, data links, operational TV and provision for rapid transmission of documents and drawings.

d. All significant technical problems identified will be logged and resolved with authorized and documented corrective action. In addition to detailed analysis, investigation of each significant technical problem will include a review of all appropriate test history, failures and prior anomalies in that particular piece of equipment or subsystem, including those which have previously been corrected or explained. This investigation may also include a review of pertinent test history, failures and anomalies in like items. Qualification test results and failure history will also be reviewed.

The record of the resolution will include the results of the reviews, the corrective action taken, and the rationale for the corrective action.

e. Each Center will present in their area of design responsibility a summary of significant technical problems, both open and closed which occur during prelaunch testing at KSC, at the Center and Program Director's Flight Readiness Reviews (Reference B). An update will be presented at the Program Director's L-2 Day Review.

f. Each Center will prepare and submit a plan to implement this directive for each mission.

III. KSC

1. Conducting the assembly, checkout, and launch of flight hardware for Skylab missions (References c and d).

2. Establishing and controlling configuration of support equipment or hardware designed or provided by KSC.

3. Identifying and reporting occurrence of significant technical problems to the Skylab Program Office and to the development Center concerned. Resolving all technical problems associated with KSC-developed hardware.

4. Reporting closeout of prelaunch technical problems associated with KSC-developed hardware.

5. Obtaining deviations and waivers from development organizations and determining deviations and waivers on KSC-developed hardware for test and checkout requirements, specifications, criteria (Reference d) and Launch Mission Rules where required.

6. Participating with MSC/MSFC, in the resolution of significant technical problems. As appropriate the cognizant test engineer and reliability and quality assurance representative will review test data, component and subsystem records, and spacecraft, SWS, GSE, or launch vehicle systems records, and present these findings to the project engineer, who will in turn advise his management of significant findings.

7. Providing data through established data channels to MSC and MSFC as required for the resolution of significant technical problems.

8. Maintaining the Center technical support team in a standby condition during the mission phase in the event support is required for the resolution of an inflight significant technical problem.

9. Ensuring that troubleshooting procedures are adequate and safe.

B. MSC

1. Establishing and controlling configuration of flight hardware, associated software, experiment hardware, and support equipment designed and provided by MSC, including Level II approval of changes during prelaunch testing at KSC (Reference e).

2. Dispositioning deviation or waiver requests to test and checkout requirements, test and checkout specifications, criteria and mission rules where required.

3. Resolving, with KSC participation, significant technical problems involving MSC designed and/or supplied hardware which occur during prelaunch testing at KSC.

4. Reporting closeout to the Skylab Program Office of significant prelaunch technical problems which relate to MSC designed and/or supplied hardware (Reference e).

5. Ensuring that the identification and resolution of all inflight significant technical problems are made known to the Program Director and the MSC Program Manager.

6. Maintaining a team of technical personnel (on station or on call depending on level of activity being supported) with a central point of contact to resolve or assist in resolving technical problems when they occur, from initiation of Integrated System Test through mission completion.

C. MSFC

1. Establishing and controlling configuration of hardware for the LV, ATM, AM, MDA, PS and OWS as well as experiment hardware, associated software, and support equipment designed and provided by MSFC at the launch site, including Level II approval of changes at KSC (Reference e).

2. Dispositioning deviation or waiver requests to test and checkout requirements, test and checkout specifications, criteria, and launch mission rules where required.

3. Resolving with KSC participation significant technical problems involving MSFC designed and/or supplied hardware which occur during prelaunch testing at KSC.

4. Reporting closeout to the Skylab Program Office of significant prelaunch technical problems which relate to MSFC designed and/or supplied hardware (Reference e).

5. Ensuring that the identification and resolution of all inflight significant technical problems are

made known to the Program Director and the MSFC Program Manager.

6. Maintaining a team of technical personnel (on station or on call depending on level of activity being supported) with a central point of contact to resolve or assist in resolving technical problems when they occur, from initiation of Integrated System Test through mission completion.

APPENDIX A

DEFINITION OF TERMS

1. Significant Technical Problems

Any problem which creates or could create a hazardous situation or condition; results in a launch delay or endangers the accomplishment of a primary mission objective; would indicate a serious design deficiency; or could have serious impact on future missions.

2. Corrective Action

Action taken to correct all conditions that contribute to, and are inherent in technical problems.

3. Mission Completion

For the purposes of the Skylab Program Directive, the mission shall be considered to be completed when the flight crew and spacecraft are safely onboard the recovery ship.

4. Flight Hardware and Associated GSE

Flight hardware includes all stages and modules of the space vehicle. Associated ground support equipment (GSE) is that equipment which interfaces with or is a part of the vehicle system and which actively participates in the system operation and/or test.

OFFICE OF MANNED SPACE FLIGHT PROGRAM DIRECTIVE	M-D ML 3200.142 (Project)	DATE DEC 5 '67

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